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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,440	08/07/2003	Gerd Hein	32860-000549/US	8542

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EXAMINER	
GUTIERREZ, ANTHONY	

ART UNIT	PAPER NUMBER
2857	

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/635,440	HEIN	
	Examiner	Art Unit	
	Anthony Gutierrez	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/3/06*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,11-21,28-34 and 38-55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,11-21,28-34 and 38-55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 4-7, 12-21, 28, 29, 31-34, 38, 39, 41-46, and 48-53, are rejected under 35 U.S.C. 102(e) as being anticipated by Desprez et al. (US Patent 6,777,917 B2).

As to claims 1, 28, 38, 45, 46, 49, 51, and 52, Desprez et al. discloses a method for balancing capacitors in a capacitor bank, comprises producing at least three voltage levels from a reference voltage source, to monitor the state of charge of the capacitors, determining a capacitor voltage for each capacitor the determined voltages with the produced voltage levels; indicating a correct charge for a capacitor when a corresponding capacitor voltage is determined to be between the two relatively lower voltage levels; indicating a fault in a capacitor when a corresponding capacitor voltage is greater than the relatively highest voltage level and balancing the capacitors only when neither a correct charge nor a fault is indicated (Abstract and col. 6, line 34-col. 7, line 5).

Desprez et al. further suggests that balancing of the capacitors occurs in two voltage ranges that are separated from each other in Fig.2.

This figure includes six different voltage levels V_1-V_6. Each level corresponds to the voltage range of each individual supercapacitor. These voltage ranges are considered to be separated from each other by virtue of each individual supercapacitor range being a function of separated bypass circuits corresponding to each separate individual supercapacitor (12).

As to claims 2, 29, and 39, Desprez et al. discloses that a fault in a capacitor is indicated when a gradient of the capacitor voltage during the charging of the capacitor, exceeds a limit value (col. 1, lines 25-31).

As to claims 4, 5, 12, 13, 31, 32, 41, and 42, Desprez et al. implies a sum voltage across two capacitors in the capacitor bank is tapped off as a reference voltage source for balancing by the use of a hysteresis signal (col. 2, lines 52-54 and col. 5, lines 36-60).

As to claims 6, 14, 16, 18, 20, 33, 43, 48, and 50, Desprez et al. discloses wherein after charging the capacitors, normal operation is started for one capacitor when the corresponding capacitor voltage reaches the relatively lowest voltage level and before the corresponding capacitor voltage has reached the relatively central voltage level; balancing begins when the corresponding capacitor voltage has reached the relatively central voltage level, and ends when the capacitor voltage has once again reached the relatively lowest voltage level wherein when the relatively lowest voltage level is reached once again, normal operation is once again started (col. 2, lines 19-29 and col. 3, lines 24-32).

As to claims 7, 15, 17, 19, 21, 34, and 44, Desprez et al. discloses wherein in order to start balancing operation, the capacitor voltages of all the capacitors are raised above the relatively central voltage level (col. 2, lines 41-45).

As to claim 53, Desprez et al. discloses a series circuit formed from a non-reactive resistor and a first transistor, arranged in parallel with at least two capacitors in the capacitor bank; at least one further transistor, connected in parallel with the first transistor, wherein; the transistors are connected to an evaluation device, and wherein voltage taps on the capacitors are connected to the evaluation device (col. 4, lines 1-10, and col. 4, line 54- col. 5, line17).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 3, 11, 30, 40, 47, 54, and 55, are rejected under 35 U.S.C. 103(a) as being unpatentable over Desprez et al. (US Patent 6,777,917 B2), in view of Spee et al. (US 6,841,971 B1).

Desprez et al. discloses a method for balancing supercapacitors that includes different voltage levels as addressed above.

Desprez et al. does not specifically discloses the use of optocouplers.

Spee et al., however, discloses, a charge balancing method (title) for super-capacitors (col. 1, lines 35-40) that uses optocouplers (col. 8, lines 6-20) including double couplers (Fig. 9, elements 330 (a and b) and 330 (e and f)), as part of an isolation circuit to accommodate different reference voltages, and teaches that this is conventional in the cited passage.

It therefore would have been obvious to one of ordinary skill in the art at the time of invention to include opto-couplers, as taught by Spee et al., in the method of supercapacitor balancing as disclosed by Desprez et al., in order to accommodate reference voltage isolation, in a way that makes use of readily available and reliable equipment.

Response to Arguments

5. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Gutierrez whose telephone number is (571) 272-2215. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AG

Anthony Gutierrez

5/12/06

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